



The Fiber Society 2017 Spring Conference

Next Generation Fibers for Smart Products

May 17–19, 2017

Conference Chairs

Dr. Thomas Gries and Dr. Yves-Simon Gloy

Institut für Textiltechnik der RWTH Aachen, Germany

Venue

*RWTH Aachen University
SUPER C, Templergraben 57
Aachen, Germany*

Program

Tuesday, May 16

Location: Institute für Textiltechnik, RWTH Aachen University, Otto-Blumenthal-Str. 1

1:00 PM–5:00 PM

Governing Council Meeting: Conference Room Nord/Süd

5:00 PM–8:00 PM

Early Bird Registration, Social, and Guided Tours: Entrance Hall

Wednesday, May 17

Location: Conference Venue at SUPER C, Templergraben 57, Aachen

7:30 Registration and Continental Breakfast: 6th Floor Foyer
 8:10 Welcoming Remarks, Business, and Announcements – Room A

*Thomas Gries, Conference Chair
 Laurence Schacher, Fiber Society President*

8:20– **Keynote Speaker:** Thomas Gries, RWTH Aachen, *Fibers and Textile Materials 4.0.*

9:00

9:00– **Keynote Speaker:** Tae Jin Kang, Seoul National University, *Adaptive Protective System for Smart Textiles*

9:40

9:40 Break

Morning Session

	Room A	Room B
	Session: Smart Polymers, Fibers, and Textiles <i>Chair, Thomas Gries</i>	Session: Multimaterial Fibers <i>Chair, Fabien Sorin</i>
10:00	<i>Smart Functions Observed on Polymer Gels</i> Toshihiro Hirai, Shinshu University	<i>Multimaterial Fibers: Challenges and Opportunities</i> Fabien Sorin, EPFL
10:25	<i>Thermo-sensitive Nanofibers Based on Biobased Materials</i> Alexandra Miletic, University of Novi Sad	<i>Multimaterial Fibers for Electromechanical Touch Sensing</i> Alexis Page, EPFL
10:50	<i>Stress-memory Filaments as Advanced Material for Smart Compression Management</i> Harishkuma Narayana, Hong Kong Polytechnic University	<i>Intermediate-Tg Phosphate and Tellurite Glasses for Multimaterial Fiber Devices</i> Sylvain Danto, University of Bordeaux
11:15	<i>ECG Measurement via AgNW/PU Nanoweb Electrodes and Comparison with Ag/AgCl Electrodes</i> Eugene Lee, Yonsei University	<i>Multimaterial Porous Fibers</i> Benjamin Grena, Massachusetts Institute of Technology
11:40	<i>PVDF Nanofibers Membrane Grown with Zinc Oxide (ZnO) Nanorods for Enhanced Wearable Sensing</i> Jintu Fan, Cornell University	<i>Microstructure Tailoring of Semiconducting Materials within High-performance Optoelectronic Fibers</i> Wei Yan, EPFL
12:05	<i>CNTs in Fibres: The Influence of Dispersion on Conductivity</i> Merle Bischoff, Institut für Textiltechnik	<i>Multimaterial Inorganic Optical Fibres and Sphere Breakup Experiments</i> Daniel Milanese, Politecnico di Torino-DISAT
12:30– 1:40	Lunch—6th Floor Foyer	

Afternoon Session

- 1:40– **Plenary Speaker:** Brit Maike Quandt, Empa, *Soft Polymer Optical Fibers for Healthcare: Tailoring Production and Properties of Photonic Textiles* (Room A)
 2:10

	Room A	B Room
	Session: Functional Fibers <i>Chair, Thorsten Anders</i>	Polymer Optical Fibers <i>Chair, Christian-Alexander Bunge</i>
2:10	<i>Organic-Inorganic Hybrids for Functional Fiber Materials</i> Meifang Zhu, Donghua University	<i>Materials for POF Production: Scattering and Transmission in Fiber Optics</i> Arne Schmitt, Evonik Performance Materials
2:35	<i>Sputter Deposition of Silver onto Monofilament Yarns: Influence of Processing Parameters on Yarn Properties</i> Anne Schwarz-Pfeiffer, Hochschule Niederrhein	<i>Smart Geosynthetics for Structural Health Monitoring Applications</i> Aleksander Wosniok, Federal Institute for Materials Research and Testing
3:00	<i>Multifunctional Properties of Carbon Nanotube Fibres</i> Juan Carlos Fernandez-Toribio, IMDEA Materials Institute	<i>Application of Thermography for Process Control in the Production of Polymer Optical Fibers</i> Robert Evert, Institut für Hochfrequenztechnik
3:25	<i>Development of Carbon Fiber-based Electrodes for Microbial Fuel Cells</i> Sascha Schrieber, RWTH Aachen University	<i>Demultiplexer in PMMA for POF Over WDM</i> Matthias Haupt, Harz University of Applied Sciences
3:50	<i>Usage of Splittable Microfilament Yarns as Carpet Pile</i> Hatice Kübra Kaynak, Gaziantep University	<i>POF-based Distributed Brillouin Sensing</i> Andy Schreier, Federal Institute for Materials Research and Testing
4:15	<i>Intensity Relationships of CH₂ Bands (ν, δ) in FT-IR Spectra of Syndiotactic Polyacrylonitrile and the Calculation of Dipole Moment</i> Masatomo Minagawa, NPO Dream-Create-Laboratories	<i>Experimental Investigation of the Wavelength-dependent Far Field for Different Mode Groups in Step-Index Polymer Optical Fibers</i> Emmanuel Nkiwane, Technische Hochschule Nürnberg
4:40	<i>open</i>	<i>Overview of the POF Market</i> Peter Kröplin, Sojitz Europe plc
5:00– 7:00	Poster Session and Competition: Super C, 6th Floor	
8:00– 9:00	Guided Walking Tours Through Aachen: Meeting Point at Tourist Information Center in Aachen	

Thursday, May 18

- 7:30 Registration and Continental Breakfast: 6th Floor Foyer
 8:00– **Keynote Speaker:** Azusa Inoue, Keio University, *Status of GI POF Technology for Upcoming 4K/8K Era*
 8:40 (Room A)
 8:40 Break

Morning Session

	Room A	Room B	Room C
	Session: Fiber Characterization and Testing <i>Chair, David Seveno</i>	Session: Polymer Optical Fibers <i>Chair, Markus Beckers</i>	Nanofibers <i>Chair, Ashwini Agrawal</i>
9:00	<i>Wettability of Carbon Fiber Tows</i> David Seveno, KU Leuven	<i>Fabrication of Microstructured Polymer Optical Fibres for Sensing</i> Joseba Zubia, University of the Basque Country	<i>ZnO Nanorods-assisted Carbonization of PAN Nanofibers</i> Ashwini Agrawal, Indian Institute of Technology

9:25	<i>Effect of Boric Acid Addition to Bulked Continuous Filaments Polypropylene via Melt Spinning Method Used in Carpet Manufacturing for Flammability</i> Nazan Avcioglu Kalebek, Gaziantep University	<i>Polymer Optical Fibers for Sensing Applications: Ionizing Radiation Monitoring</i> Pavol Stajanca, Bundesanstalt für Materialforschung und-prüfung	<i>Electrospun Nanofiber-assisted Hydrogel Thin Film on Shaped Surfaces</i> Yakup Aykut, Uludağ University
9:50	<i>New Measurement Technology for Evaluation of Transversal Interfiber Friction</i> Anwar Shanwan (Artan Sinoimeri), Université de Haute-Alsace	<i>Influence of Scattering Characteristics on the Angle and Time-dependent Backscattered Power in Polymer Optical Fibers</i> Martin Gehrke, Technische Hochschule Nürnberg	<i>Application of Nanofibers for Dye Removal of Colored Wastewaters</i> Mohammad Ebrahim Olya, Institute for Color Science and Technology
10:15	<i>Multiscale Investigation of Hair Fiber Surface Properties: Links Between Morphological and Tribological Behavior</i> Judith Wollbrett-Blitz, L'Oréal Research and Innovation	<i>Influence of the Impulse Rebound on Optical Strain Sensors Based on Step-Index Polymer Optical Fibers</i> Thomas Becker, Technische Hochschule Nürnberg	<i>Investigation of the Structural Parameters in Electrospun Piezo Nanofibers and Yarns</i> Maryam Yousefzadeh, Amirkabir University of Technology
10:40	<i>Intrinsic Traceability of High-value Textiles Manufacturing Using Natural Fibres</i> Steve Ranford, AgResearch Limited	<i>Low OH Tellurite Glasses for Nonlinear Optical Fibers and Supercontinuum Generation Beyond 3µm</i> Clément Strutynski, University of Bordeaux	open

10:40	Break		
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	Session: Smart Polymers, Fibers, and Textiles <i>Chair, Martin Harnisch</i>	Session: Biobased Materials <i>Chair, Gunnar Seide</i>	Session Biomedical Applications <i>Chair, Buket Demir</i>
11:05	<i>Characterization of Heat Storage Properties of Textiles Incorporating Phase Change Materials by Means of Heat Release Tester WATson</i> Martin Harnisch, Hohenstein Institut für Textilinnovation	<i>Development of Biobased Self-reinforced Polymer Composites</i> Thomas Köhler, RWTH Aachen University	N-halamine Technology for Antimicrobial Wound Dressings Buket Demir, Auburn University
11:30	<i>AgNW-treated PU Nanoweb/PDMS Composites as Wearable Strain Sensors for Monitoring Joint Flexion</i> Inhwan Kim, Yonsei University	<i>Tailored Fiber-reinforced Gelatin Hydrogels for Biocomposite Printing</i> Christopher Anderson, Philadelphia University	<i>Development of Novel Coextruded and Wet Spun Fibers for Medical Applications</i> Klas-Moritz Kossel, RWTH Aachen University
11:55	open	<i>Cellulose Aerogel Fibres for Thermal Encapsulation of Diesel Hybrid Engines</i> Jens Mroszczok, RWTH Aachen University	<i>Interaction of Material and Structural Elasticity in a Small Calibre Vascular Graft</i> Alexander Löwen, RWTH Aachen University

12:20 -1:40	Lunch—6th Floor Foyer		
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Afternoon Session

1:40– **Plenary Speaker:** Gunnar Seide, Aachen-Maastricht Institute for Biobased Materials (AMIBM), *Biobased Materials: Challenges of Applications and Process Development* (Room A)
2:10

	Room A	Room B	Room C
	Session: Yarns and Fabrics: Processes, Structures, and Properties <i>Chair, Laurence Schacher</i>	Session: Modeling and Simulation of Textiles and Processes <i>Chair, David Breen</i>	Session: Composites <i>Chair, Wilhelm Steinmann</i>
2:10	<i>Examining of the Effects of Fiber Types and Fabric Tightness on Bursting Strength of Circular Knit Fabrics Produced from Vortex Yarns</i> Seval Uyanik, Gaziantep University	<i>An Optimized Yarn Geometric Model for Knitted Material Simulation</i> David Breen, Drexel University	<i>Enhanced Damping of Carbon Fiber-reinforced Composites by Novel Liquid-Core Fibers</i> Rudolf Hufenus, Empa
2:35	<i>An Investigation About Performance Properties of Warp Knitted Carpets</i> Züleya Değirmenci, Gaziantep University	<i>Modeling Approaches for 3D Woven Composites: Potential and Limitations</i> Mohamed Saleh, University of Sheffield	<i>A Novel Automated Method for Manufacturing New Semi-finished Photo Composites</i> Anwar Shanwan, Université de Haute-Alsace
3:00	<i>Emissivity Characterization of Different Stainless Steel Textiles in the Infrared Range</i> Mariacristina Larciprete, Sapienza Università di Roma	<i>Internal Structure of the Bundle Manufactured by Friction Method</i> Jung Ho Lim, Kyung Hee University	<i>Metal Composite Yarn Production with Commingling Technique and Properties of Textile Surfaces Obtained from These Yarns</i> İlkan Özkan, Çukurova University
3:25	<i>How Nonwovens Avoid the Shrink</i> Amit Rawal, Indian Institute of Technology-Delhi	<i>Effect of Staple Length on the Sliver Dynamics in Roller Drafting</i> You Huh, Kyunghee University	<i>Strategies for Improving Durability of Vegetable Fiber-reinforced, Cement-based Composites</i> Mònica Ardanuy, Universitat Politècnica de Catalunya
3:50	<i>Effects of the Laundering Process on Dimensional Properties of Lacoste Fabrics Made from Modal/Combed Cotton-blended Yarns</i> Ebru Çoruh, Gaziantep University	<i>Modeling of the Mechanical Properties of Cotton Fibers</i> Wafa Mahjoub, Université de Haute-Alsace	<i>Basalt Fiber as Technical Textile Material</i> Ertan Özgür, University of Çukurova
4:15	<i>Antibacterial Activity of Nonwoven Cleaning Materials Treated with Silver Nanoparticles after Newly Developed Repeated Washing Process</i> Emel Çinçik, Erciyes University	<i>open</i>	<i>open</i>

6:00–6:30 **Reception: Alter Ballsaal, Kurhausstraße 1, Aachen (5 minute walk or bus station: Aachen, Bushof)**
6:30 **Banquet**
 Music: German Classics

Friday, May 19

7:30 Continental Breakfast: 6th Floor Foyer

8:00–8:40 **Keynote Speaker:** Yves-Simon Gloy, RWTH Aachen, *Digitalization in the Textile Industry* (Room A)

8:40 Break

	Room A	Room B	Room C
	Session: Reinforcing Structures <i>Philipp Abel</i>	Session: Fiber Formation, Structure, and Properties <i>Chair, Takeshi Kikutani</i>	Yarns and Fabrics: Processes, Structures, and Properties <i>Chair, Janice R. Gerde</i>
9:00	<i>Characterization of Warp-knitted Reinforcing Fabrics and Cement-based Composites: Influence of Yarn and Stitch Types on Mechanical Performance</i> Till Quadflieg, RWTH Aachen University	<i>Crystallization and Melting Behaviors of Polypropylene Blend Fibers Consisting of High and Low Stereo-regularity Components</i> Takeshi Kikutani, Tokyo Institute of Technology	<i>Tactile Feeling of Textiles: A Comparative Study Between Textiles Attributes of France, Portugal, and Brazil</i> Maria José Abreu, Minho University
9:25	<i>In-plane Permeability Characterization of Reinforcing Fabrics Based on Radial Flow Experiments: Comparative Studies</i> Ewald Fauster, Montanuniversität Leoben	<i>Tungsten Wire Fabrics Used in Tungsten Fibre-reinforced Composites</i> Philipp Huber, RWTH Aachen University	<i>Determination of the Heat Dissipation of Sport Bras Using Thermal Manikin and Thermography</i> André Catarino, Minho University
9:50	<i>Investigation of the Production of Hollow Carbon Fibres</i> Robert Brüll, RWTH Aachen University	<i>Numerical Analysis of Non-steady State Melt-blowing Process Based on a Particle Method</i> Wataru Takarada, Tokyo Institute of Technology	<i>A Study to Improve Drying Property of Towel Fabrics</i> Sait Yilonu, Çukurova University
10:15	<i>Development of Oxide Ceramic Fibers for Reinforcing Ceramic Matrices</i> Bernd Clauß, German Institutes of Textile and Fiber Research Denkendorf	<i>Strength Improvement of Polypropylene Fine Fibers by Increasing Beta-crystal Content</i> Kyung-Ju Choi, Clean & Science, Ltd.	<i>3D Knitting Using Large Circular Knitting Machines</i> Kristina Simonis, RWTH Aachen University
10:40	<i>Analysis of Ceramic Fibre Processing with Braiding Machines for Two- and Three-dimensional Reinforcement Structures</i> Lisa Papenbreer, RWTH Aachen University	<i>Wet-spinning of Silk Fibroin-based Conductive Core-Sheath Fiber</i> Bin Fei, Hong Kong Polytechnic University	<i>The Indexes of Textile's Warm-Cool Feeling</i> Lexi Tu, Donghua University
11:05	<i>open</i>	<i>open</i>	<i>Radiant Heat-protective Performance of Fabrics Used in Firefighters' Clothing: A Scientific Study</i> Sumit Mandal, Empa
11:30	Break		

	Session: Textile Factory of the Future Chair, Yves-Simon Gloy	Session: Fiber Formation, Structure, and Properties <i>cont'd</i>	Yarns and Fabrics: Processes, Structures, and Properties <i>cont'd</i>
11:40	<i>Task and Work Process-based Design of Intelligent Assistance Systems in Textile Factories</i> Mario Löhner, RWTH Aachen University	<i>The Evolution and Formation Mechanism of Gradient Structure During Melt Spinning of Blend Fiber</i> Dan Pan, Donghua University	<i>Airflow Characteristics During Rotor Spun Composite Yarn Spinning Process</i> Ruihua Yang, Jiangnan University
12:05	<i>Industry 4.0 and the Future of Textile Production in High-wage Countries</i> Maximilian Kemper, RWTH Aachen University	<i>Spinnability of Polyacrylonitrile Solution Research Based on Dry-Jet Wet Spinning Dynamics Simulation</i> Jianning Wang, Donghua University	<i>Twisting Robustness in the Ring Spinning System with Single Friction-belt False-twister</i> Rong Yin, Hong Kong Polytechnic University
12:30	<i>open</i>	<i>Increase of the Adhesion Property of CFRP and CFRTP Materials and Preparation of New FRP Using Modified Fiber</i> Hitoshi Kanazawa, Fukushima University	<i>Development and Characterization of a New 3D, Nonwoven, Pleated Shockproof Product Inserted in Clothing for Body Protection</i> Abdelbaki Djerboua, ENSISA
12:55	<i>open</i>	<i>Grafting β-cyclodextrin on Cotton Fabric</i> Malihe Nazi, Standard Research Institute	<i>open</i>
1:20	CONFERENCE CLOSES		

1:25– Snack

1:45

1:45– Buses Load from Super C to ITA

2:15

2:15– Tour of Research Facilities at ITA, RWTH Aachen University

3:45

Poster Session

Wednesday, May 17, 5:00 p.m.–7:00 p.m., Super C, 6th Floor Foyer

Presenter

Title

Run Wen	<i>Design of Freestyle Machine Embroidery</i>
Alenka Ojstršek	<i>Flame Retardant Activity of Fabrics Based on Aluminosilicate Coatings</i>
Pınar Duru Baykal	<i>Determining the Effect of Different Washing Types on Tear Strength of Denim Fabrics</i>
Belkis Zervent Ünal	<i>The Effects of Abrasion Process on Water Repellency Performance of Upholstery Fabrics</i>
Yurong Yan	<i>Micro- and Nanoscale Polyester-based Hybrid Acoustic Insulation Materials</i>
Darinka Fakin	<i>Preparation of Polyamide 6/Zeolite Composite Filaments</i>
Maryam Yousefzadeh	<i>Photo-Catalysis Properties of Electrospun Ceramic TiO₂ Nanofibers with Different Structure and Morphology</i>
Benjamin Mohr	<i>Potential of POF Sensors for Structural Health Monitoring of Fiber Composites</i>

Fumei Wang	<i>Dual-beard Algorithm for Fiber Length Histogram</i>
Lin Zhou	<i>A Study of 3D Auxetic Textile Reinforced Composite</i>
Wing Sum Ng	<i>Negative Poisson's Ratio Behavior and Pore Characteristics of Woven Fabric Made of Auxetic Plied Yarn Under Tension</i>
Guangbiao Xu	<i>Tensile Property of PTFE Under Different Conditions</i>
Xiaohuan Ji	<i>Synthesis of Monodisperse and Porous Ag Nanoparticles/Polystyrene Microcomposite Particles by Seeded Suspension Polymerization</i>
Jong Sung Kim	<i>Investigation on Air Suction Phenomenon for a Rotating Flyer</i>
Tobias Schlüter	<i>Polymer Blends for Textile and Composite Applications</i>
Eunji Jang	<i>PU Nanoweb Transmission Lines Coated with Non-oxidized Graphene for Smart Clothing</i>
Emel Ceyhun Sabır	<i>Textile Energy Storage</i>
Nils Gerstein	<i>Recyclability of Carbon Fiber-reinforced Concrete Structures</i>
Mario Löhner	<i>Interactive Learning Systems for Textile Technology</i>
Gözdem Dittel	<i>Tailored, Warp-knitted Reinforcing Textiles for Construction Applications</i>
Merle Bischoff	<i>Development of an "Anti-bug" Bicomponent Fibre</i>
Alan Grice	<i>Modeling Dynamic Fiber Behavior in a Meltblowing Die Utilizing FSI</i>
Jiaojiao Shang	<i>Fabrication of Ultrasensitive CO₂-responsive Nanofibers via Post-polymerization Modification for the Visual Detection of CO₂</i>
Kai Hou	<i>A Novel Dynamic-Crosslinking-Spinning Technology for Fabrication of Hydrogel Fibers</i>
Musa Akdere	<i>Cribellate Spiders: A Biomimetic Inspiration for Processing and Handling Nanofibers</i>
Maria José Abreu	<i>PVC-based Synthetic Leather with Thermal Comfort for Automobile Applications</i>
Inhwan Kim	<i>Comparative Analysis of Wearable Respiration Sensors Based on PU Nanoweb/PDMS Treated with AgNWs and PPy</i>
Kang Chen	<i>Insight into the Relationship Between Creep Behavior and Structure of Polyester Industrial Yarns</i>
Sascha Schriever	<i>Economical and Technical Investigation on the Recycling of Polyacrylonitrile(PAN)-containing Waste</i>
André Catarino	<i>Shape Memory Alloys Applications on Venous Diseases: A Compression Sock with Intelligent Limb Adjustment</i>
Malihe Nazi	<i>Identification of Specific Animal Hair Fibers Using Forensic Science</i>
Maximilian Kemper	<i>Storefactory—Customizable In-store Textile Production</i>
Itxaso Parola	<i>Double-doped Polymer Optical Fibers for Fluorescent Fiber Applications</i>
Inga Noll	<i>A New Shape Factor Method for Profiled Polyester Fibers</i>
Chung Hee Park	<i>Influence of Alkaline Treatment on Surface Roughness and Wetting Property for Hydrophobized Silk Fabrics</i>
Wan-Gyu Hahm	<i>Analysis of PET Fiber Deformation in High-speed Melt Spinning by Using 2-way Online Diameter Measurements</i>
Jan Kallweit	<i>Nanoparticle Modified Polymer Melts and the Theory of Similarity</i>
Jeanette Ortega	<i>Prediction of Yarn Properties by Inline Measurement and Numerical Modeling</i>
Georgi Gogoladze	<i>Stability of Basalt Fibers in the Alkaline Environment</i>
Riada Meyer	<i>Investigation of the Spinnability of Polymers with a High-speed Rheometer</i>
Milad Asadi	<i>A Study in Flame Retardancy of Flavonolignans Composition in Polypropylene Filaments</i>